

Bradley Kohler

B.ENG. MECHATRONICS ENGINEERING · 4 YEARS OF PROFESSIONAL WORK EXPERIENCE

Toronto, ON, Canada

✉ bradleykohler96@gmail.com | 📱 studentbrad | 🌐 studentbrad

Skills

Programming Languages

BASH
C/C++/C#
Python
Java
HTML/CSS/JavaScript

Machine Learning

PyTorch
TensorFlow

Microprocessor Firmware

STM32
Nordic
Qualcomm
Simulink

Operating Systems

Linux
AndroidOS
mbedOS
ChibiOS
FreeRTOS

Hardware Design

Verilog HDL
NI Multisim
Eagle

Systems Design

AutoCAD
SolidWorks
Maplesim

Computer Mathematics

Maple18
NumPy
Eigen
MATLAB

Continuous Integration

Docker
TravisCI
CircleCI
Jenkins
Bamboo

Work Experience

STMicroelectronics

[Waterloo, Ontario](#)

CELLULAR SOFTWARE DEVELOPER

Sept. 2021 - Present

- Added support for several LTE Cat M1/MTC/NB E-UTRA Radio Resource Control (RRC) features (3GPP specification 36.331) in embedded C.
- Debugged protocol stack issues using Amarisoft and Rohde & Schwarz wireless communication conformance testing equipment.
- Built and maintained hardware/firmware/software test machines for design, verification, and testing.
- Developed new tools for decoding and logging air messages during runtime to ease development efforts.
- Generated and presented ideas to a larger group of LTE developers to make quality improvements.

Labforge Inc.

[Waterloo, Ontario](#)

SOFTWARE & FIRMWARE DEVELOPER

May 2020 - Sept. 2021

- Developed machine learning neural network structures, criteria, and optimization techniques; demonstrating good performance in the field.
- Designed and programmed new approaches to object re-identification and tracking in C/C++ and Python achieving fast results (100ms pipeline).
- Improved inertial sensor code bases in C/C++; running sensor processes as Unix systemd daemons on stereo cameras.
- Contributed in a corroborative effort with a team of software developers to a reliable C/C++ state estimation engine for stereo camera tracking.
- Communicated design ideas and coded with another software developer to create a robust C/C++ camera calibration software.

Northern Digital Inc.

[Waterloo, Ontario](#)

ADVANCED RESEARCHER & FIRMWARE DEVELOPER

May 2018 - Sept. 2019

- Utilized mathematics skills to successfully design and program multiple data fusion algorithms in C/C++ and Python for 3D guidance systems (achieving NASA level TRL4) with real-time performance on offline systems (1-10ms pipeline).
- Worked collaboratively with a team of software developers to develop a fast C/C++ simulator (<10s) for a virtual reality headset/handremotes.
- Worked on custom hardware writing low-level firmware for sensors/peripherals including IMUs, ADCs, DACs, FLASH, UART, etc.
- Showed responsibility by coding CI/CD unit testing and deployment scripts for production products; automating testing using Bamboo/Jenkins.

McMaster University

[Hamilton, Ontario](#)

ADVANCED RESEARCHER & TEACHING ASSISTANT

May - Dec. 2015 & May - Sept. 2017

- Worked with a team of software engineers developing software for safety critical systems using Matlab Simulink.
- Successfully designed and built a prototype pacemaker using the Freescale K64F + custom PCB.

Education

McMaster University

[Hamilton, Ontario](#)

MECHATRONICS ENGINEERING CO-OP

Sept. 2014 - April 2020

- McMaster Cumulative Grade Point Average 3.6/4.0
- McMaster Engineering Co-op Student of the Year Nominee

Projects

Bottlenose

[Waterloo, Ontario](#)

DEVELOPER

May 2020 - May 2021

- Authored solutions for detection, re-identification, tracking and estimating past, present and future states of known objects.
- Primarily coded in Python and C/C++ using popular computer vision libraries such as PyTorch, GTSAM, OpenCV, etc.

Retina

[Hamilton, Ontario](#)

DEVELOPER

Sept. 2019 - April 2020

- Sped development on a wireless indoor navigation system by reverse engineering existing Bluetooth protocols in firmware packages resulting in a much higher accuracy than GPS (10m) using Ultra Wideband (10cm).
- Demonstrated flexibility by learning JavaScript and modifying NodeJS backend services for indoor positioning, routing and navigation.